PASECHNIK, M. V.; BARCHUK, I. F.; VERTEBNYY, V. P.: VLASOV, M. F.: KOLOTIY, V. V. MAYSTRENKO, A. N.: MOSTOVOY, V. I.; NAZARCHUK, M. M.; PILIPETS, D. T.

"The parameters of the WWR-M reactor of the Inst of Physics, UkSSR and its application in nuclear physics research."

report submitted for 3rd Intl Conf, Peaceful Uses of Atomic Energy, Geneva, 31 Aug-9 Sep 64.

ACC NR: AP7002172 SOURCE CODE: UR/0089/66/021/006/0514/0515

AUTHOR: Barchuk, I. F.; Pilipets, D. T.

ORG: none

TITLE: Method of checking the tightness of the fuel elements of the VVR-M reactor

SOURCE: Atomnaya energiya, v. 21, no. 6, 1966, 514-515

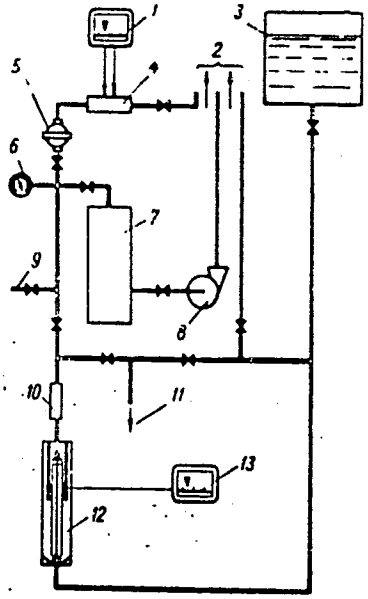
TOPIC TAGS: reactor fuel element, nuclear fission, fission product, metal cladding/ VVR-M reactor

ABSTRACT: The method described by the authors was developed at the Physics Institute of the Ukrainian Academy of Sciences in 1962. Its features are that the gaseous fission products accumulated in the fuel elements are extracted from an unsealed fuel element by vacuum into a large volume, after which they are gathered and concentrated in an ionization chamber whose volume is 100 times as small (Fig. 1). This greatly increases the sensitivity of the method. The current produced in the ionization chamber by the radioactive products from the fuel element serves as a criterion for determining the degree of its tightness. A procedure for applying this method under reactor conditions is described. The time it takes to test one fuel element is about one hour and requires the services of only one operator. Orig. art. has: 1 figure.

UDC: 621.039.547

ACC NR: AP7002172

Fig. 1. Schematic diagram of installation for checking tightness of fuel elements: 1 - Measurement of ionization current, 2 - to special ventilator, 3 - distillate tank, 4 - ionization chamber, 5 - filter, 6 - vacuum meter, 7 - forevacuum flask, 8 - forevacuum pump, 9 - compressed air, 10 - water-measuring beaker, 11 - to special waste disposal, 12 - vacuum chamber, 13 - measurement of fuel element temperature.



SUB CODE: 18/ SUBM DATE: 07Apr66

Card 2/2

MOROZKIN, N.I.; BUSLENKO, A.I.; BARCHUK, V.F.; TRINUS, Ye.K. (Kiyev)

Asian influenza of 1962 and the characteristics of its clinical course. Vrach. delo no.1:102-105 Ja'64 (MIRA 17:3)

1. Institut infektsionnykh bolezney Ministerstva zdravookhraneniya UkrSSR.

BARCHUK, V.F.

Poliomyelitis in vaccinated children. Vrach. delo no.11:93-96 N'63. (MIRA 16.12)

1. Institut infektsionnykh bolezney Ministerstva zdravookhraneniya UkrSSR.

5(4)

SOV/80-32-4-24/47

AUTHORS: Frantsevich-Zabludovskaya, T.F., Zayats, A.I. and Barchuk, V.T.

TITLE: On the Problem of the State of Nickel in Tartaric Acid Ammonia and Citric Acid Ammonia Solutions (K voprosu o sostoyanii nikelya v vinnokislo- i limonnokisloammiachnykh rastvorakh)

PERIODICAL: Zhurnal prikladnoy khimii, 1959, Vol 32, Nr 4, pp 842-847 (USSR)

ABSTRACT: In previous publications [Ref 7, 8] the authors put forward a hypothesis that in citric acid and tartaric acid ammonia electrolytes for electrodeposition of the alloys of molybdenum and tungsten with nickel, the latter is discharged from the complex oxyacid anion. To check this hypothesis, the authors undertook additional investigations of the absorption spectra of nickel sulfate solutions in the presence of citric acid and tartaric acid salts, ammonia and their mixtures. Determinations of the absorption spectra were carried out with a quartz spectrophotometer of the SF-4 type. The results obtained are shown in Figures 1 and 2. Determination of the sign of the charge of nickel-containing ions was carried out with a device shown in Figure 3 which contains non-polarizable copper - copper sulfate electrodes at a voltage of 140 v and a current intensity of ~20 mA. The results of observations are shown

Card 1/3

On the Problem of the State of Nickel in Tartaric Acid Ammonia and Citric Acid Ammonia Solutions

in Table 3. Conclusions drawn by the authors from their experiments are as follows: 1. Both positive and negative charged compounds of nickel have been discovered in citric acid ammonia solutions, whereas in tartaric acid ammonia solutions anions have not been detected; 2. Two absorption maxima have been found in tartaric acid ammonia solutions by measuring the optical density, and their wavelengths correspond to those of ammonia and tartaric acid compounds of nickel; in citric acid ammonia solutions only one maximum has been observed, and its nature indicates the presence of interaction between positively and negatively charged compounds; 3. The nickel deposition in oxyacidammonia electrolytes occurs mainly from ammonia complex cations, and the previous conjecture of the authors thus proved to be not quite justified.

On the Problem of the State of Nickel in Tartaric Acid Ammonia and Citric Acid Ammonia Solutions

There are 2 graphs, 1 diagram, 3 tables and 8 references, 6 of which are Soviet, 1 American and 1 French.

SUBMITTED: November 14, 1957

S/073/60/026/001/002/021
B004/B054

AUTHORS: Frantsevich-Zabludovskaya, T. F., Zayats, A. I., and Barchuk, V. T.

TITLE: Mechanism of Electroprecipitation of Molybdenum- and Tungsten Alloys With Metals of the Iron Group. 2. Oscilloscopic Investigation

PERIODICAL: Ukrainskiy khimicheskiy zhurnal, 1960, Vol. 26, No. 1, pp. 10-15

TEXT: The authors have found in Ref. 1 that electroreduction of tungstates and molybdates to metal depends on the velocity at which they are brought up to the discharge spot. In electroprecipitation of metals of the iron group and their alloys, however, the discharge of ions is the retarding stage. This was proved in the present study by taking oscillograms. The calculation method of V. A. Royter (Ref. 2) was used. Royter derived equations for the potential change as a function of time when the polarizing current is switched on and off. For ferrous metals, only the switch-off oscillograms are suitable, for which the equation $d\Delta E/dt$

$= \pm K \left[\exp(-\Delta E/b') - \exp(\Delta E/b')\right]$ (1) is written down. It can be simplified for strongly polarized metals: $d\Delta E/dt = \pm K \exp(\Delta E/b')$ (2). Integration over 0 - t and $\Delta E_o - \Delta E_1$, and transformation yields: $t = \pm (b/2.3 \cdot K)(10^{-\Delta E/b} - 10^{-\Delta E_o/b})$ (3). In these equations, t denotes the time, ΔE the difference between the equilibrium potential and the potential of any point in the oscillogram, ΔE_o the difference between equilibrium- and initial potential, $b' = RT/\alpha zF$; $b = 2.3b'$; $K = V_o zF/c$; z = valency of the discharging ion; c = capacity of the electrode in farads/cm^2; α = coefficient of the equation for retarded discharge; V_o = rate of the process discharge - ionization with switched-off external circuit. K can be calculated from the linear relation between t and $R' = (10^{-\Delta E/b} - 10^{-\Delta E_o/b})$. The experiments were conducted by the method described earlier (Ref. 1). The electrode potential referred to a calomel electrode was measured by a ППТВ-1 (PPTV-1) potentiometer. The authors used an МПО-2 (MPO-2) loop oscilloscope combined with an electronic amplifier. The velocity of the

Card 2/4

Mechanism of Electroprecipitation of Molybdenum- and Tungsten Alloys With Metals of the Iron Group. 2. Oscilloscopic Investigation

S/073/60/026/001/002/021
B004/B054

recording film was 500 mm/sec; 500 time marks per sec were recorded. The oscillograms of electroprecipitation of Ni and its alloys with W and Mo from an ammoniacal electrolyte were taken at 25°C and a current density between 0.4 and 1 ma/cm^2. The retarded discharge was confirmed to be the decisive stage of electroprecipitation of Ni and its alloys. The following mechanism is suggested: The tungstate and molybdate anions are deformed due to the polarizing effect of the cathode and the Ni cation. The bond between oxygen and metal in the anion is weakened. The nickel ions are reduced on the cathode, active nickel Ni* forming whose valency electrons are on a high energy level. By reaction of activated Ni with deformed anions, active complexes are formed: $Ni^* + WO_4^{2-} \rightarrow Ni^* \ldots \overline{WO}_4$. This facilitates the interaction between W (or Mo) and electrons, and a reduction occurs under formation of a solid solution: $Ni^* \ldots \overline{WO}_4 + 6e + 4H_2O \rightarrow Ni\text{-}W + 8OH^-$. A. N. Frumkin is mentioned. There are 4 figures, 1 table, and 12 Soviet references.

Card 3/4

Mechanism of Electroprecipitation of Molybdenum- and Tungsten Alloys With Metals of the Iron Group. 2. Oscilloscopic Investigation

S/073/60/026/001/002/021
B004/B054

ASSOCIATION: Institut obshchey i neorganicheskoy khimii AN USSR (Institute of General and Inorganic Chemistry AS UkrSSR)

SUBMITTED: October 8, 1958

Card 4/4

L 17704-63 EWT(q)/EWT(m)/BDS AFFTC/ASD JD

ACCESSION NR: AP3003995 S/0073/63/029/007/0722/0726

59
58

AUTHORS: Sheyko, I. N.; Grechina, T. N.; Barchuk, V. T.

TITLE: Anodic dissolution of zirconium in a fused equimolar mixture of potassium and sodium chlorides

SOURCE: Ukrainskiy khimicheskiy zhurnal, v. 29, no. 7, 1963, 722-726

TOPIC TAGS: anodic dissolution, potassium chloride, sodium chloride, zirconium

ABSTRACT: Anodic dissolution of zirconium in wide current density limits and the changes of its ionic condition from the natural layer inside the electrolyte have been analyzed. The study was performed between temperatures of 700 and 720C in a fused equimolar mixture of potassium and sodium chlorides and with varied anodic current density. It was shown that, with small current densities of 0.05 to 0.1 a/cm^2, zirconium dissolves preferentially in the divalent form. With an increase of current density, the average valence of the dissolved metal grows, but at a current density of 2 a/cm^2 and higher, it becomes equal to four. The divalent zirconium does not accumulate in the fused mass but is disproportionated to zirconium tetrachloride and metal. Zirconium dichloride exists in equilibrium with the metal only on the surface of highly dispersed metallic zirconium which is obtained in the process of disproportionation. Orig. art. has: 4 tables and

Card 1/2

L 17704-63
ACCESSION NR: AP3003995

2 figures.

ASSOCIATION: Institut obschey i neorganicheskoy khimii AN UkrSSR (Institute of general and inorganic chemistry, Academy of Sciences, UkrSSR)

SUBMITTED: 07Dec61 DATE ACQ: 15Aug63 ENCL: 00

SUB CODE: CH NO REF SOV: 003 OTHER: 004

Card 2/2

ACCESSION NR: AP4040756 S/0073/64/030/006/0577/0581

AUTHOR: Sheyko, I. N.; Barchuk, V. T.

TITLE: Zirconium dichloride behavior in molten mixtures of alkali- and alkali earth chlorides

SOURCE: Ukrainskiy khimicheskiy zhurnal, v. 30, no. 6, 1964, 577-581

TOPIC TAGS: zirconium dichloride, zirconium tetrachloride, zirconium dichloride disproportioning, alkali chloride, alkali earth chloride

ABSTRACT: The object of the study was to find the behavior of zirconium dichloride in the following melts: KCl-LiCl, KCl-NaCl, NaCL-$CaCl_2$, KCl-$MgCl_2$, NaCl-$MgCl_2$, NaCl-$BaCl_2$, NaCl-$AlCl_3$, KCl-NaCl-$ZrCl_4$. It was found that up to 400C $ZrCl_2$ remains unchanged and insoluble. It is present in the melt in the form of a fine suspension. Above 400C, depending on the composition of the melt, it dissociates into $ZrCl_4$ and Zr metal which remains in suspension together with the unreacted $ZrCl_2$ at its surface (in a state of equilibrium) while $ZrCl_4$ dissolves in the melt. This process depends on the nature of the melt, on temperature, and on the duration of the experiment. The quantity of $ZrCl_2$ susponded in the melt depends

Card 1/2

ACCESSION NR: AP4040756

on the temperature and the stability of the Zr metal suspension. All melting tests were made in an argon atmosphere, since Zr powder spontaneously ignites in the air. The conversion of $ZrCl_2$ into $ZrCl_4$ is practically completed in the first 30 min. Orig. art. has: 3 figures, 2 tables.

ASSOCIATION: Institut obshchey i neorganicheskoy khimii AN UkrSSR (Institute of General and Inorganic Chemistry AN UkrSSR)

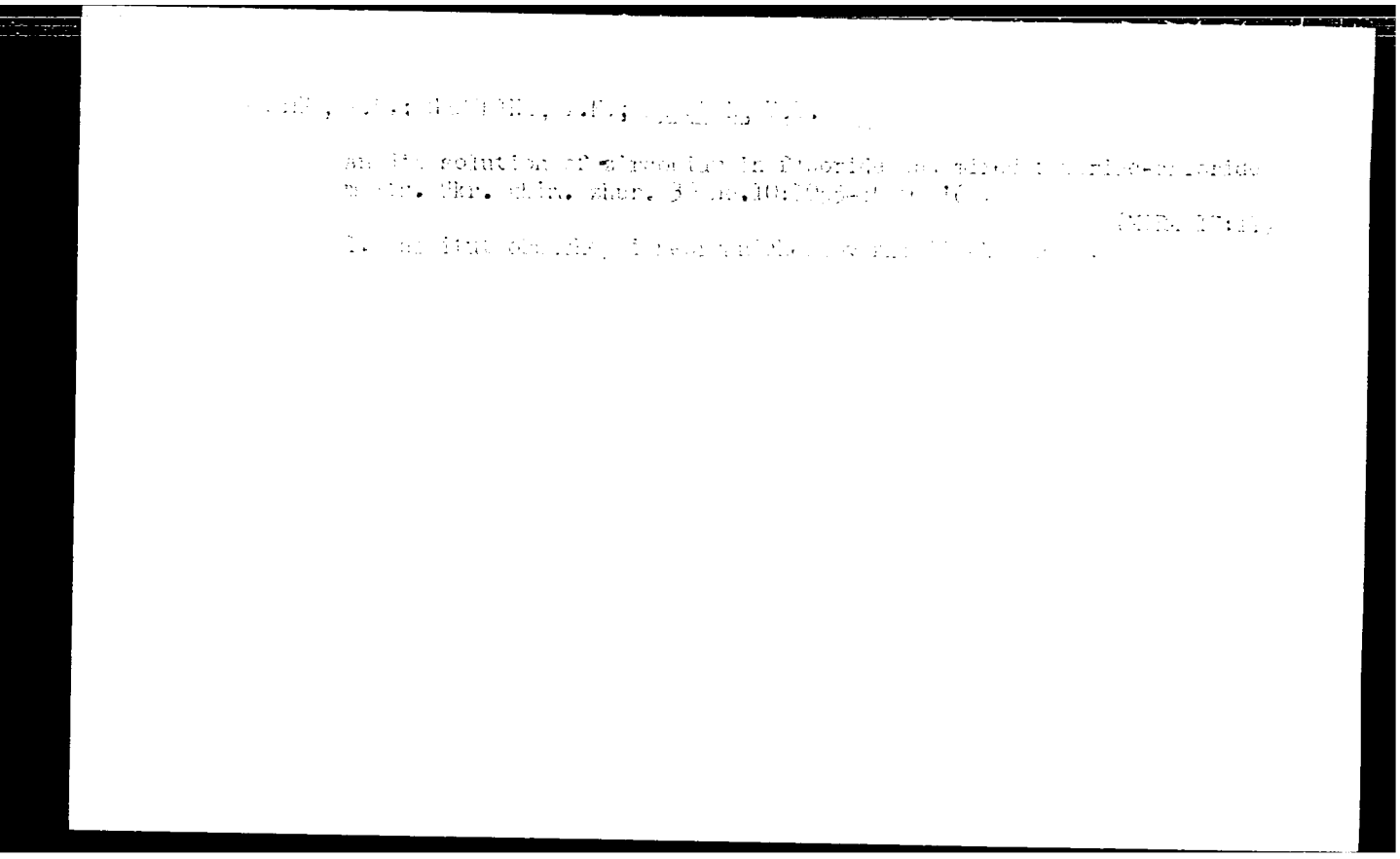
SUBMITTED: 28Dec62

ENCL: 00

SUB CODE: IC

NR REF SOV: 002 OTHER: 000

Card 2/2



BARCHUKOV, A. I. 176T104

USSR/Physics - Cosmic Rays 1 Aug 50

"Transitional Effect of Density in Electron-Nuclear Showers," M. I. Podgoretskiy, A. I. Barchukov, D. F. Rakitin, Phys Inst imeni Lebedev, Acad Sci USSR

"Dok Ak Nauk SSSR" Vol LXXIII, No 4, pp 685-688

Reveals "transitional effect of density". Appearance of difference between (a) the probability q_2 of recording simultaneous creation of 2 showers generated by 2 particles formed in previous shower and (b) the sum of the probabilities (2_{q1}) of recording 2 successive acts of shower formation created by these 2 particles by separately. This effect has also been considered by N. G. Birger, V. I. Veksler, N. A. Dobrotin, G. T. Zatsepin, L. V. Kurnosova, A. L. Lyubimov, I. L. Rozental', and L. Kh. Eydus (see "Zhur Eksper i Teoret Fiz" No 19, 826, 1949). Submitted 3 Jun 50 by Acad D. V. Skobel'tsyn.

BARCHUKOV, A.I.

USSR/Physics - Microwave spectroscopy

FD-729

Card 1/1 : Pub 146-17/18

Author : Prokhorov, A. M., and Barchukov, A. I.

Title : Method of measuring the absorption coefficients in microwave radio-spectroscopy

Periodical : Zhur. eksp. i teor. fiz., 26, 761-763, Jun 1954

Abstract : Letter to the editor. Points to some deficiencies in Hugues's method (Ann. N. Y. Acad. Sci. 55, 872, (1952)) of measuring relative intensities and suggests some improvements. One reference, above mentioned.

Institution : Physics Institute imeni Lebedev, Acad. Sci. USSR

Submitted : March 9, 1954

Card 1/1 Pub 90-4/12

Author : Barchukov, A. I., Vasil'ev, G. A., Zhabotinskiy, M. E., Osipov. B. D.

Title : Electromechanic klystron frequency stabilizer

Periodical : Radiotekhnika, 10, 29-32, Mar 1955

Abstract : The article describes results of testing an electromechanic klystron frequency stabilizer developed by the authors at the Physics Institute imeni P. N. Lebedev of the Academy of Sciences USSR in 1951. The aim of this research was to develop a stabilizer simple in construction and operation, which could also provide an easy means for the klystron frequency changes. To attain these prerequisites in a single block, the functions of cavity resonator and the discriminator were unified, and the modulation of resonant frequency of the cavity-resonator wavemeter was executed by means of a movable membrane.

Institution: Physics Institute imeni P. N. Lebedev, Academy of Sciences USSR

Submitted : 16 Apr 1954

USSR/Physics - Spectrum of C_2H_5Cl FD-3274

Card 1/1 Pub. 146 - 33/44

Author : Barchukov, A. I.; Minayeva, T. M.; Prokhorov, A. M.

Title : Microwave spectrum of the molecule C_2H_5Cl

Periodical : Zhur. eksp. i teor. fiz., 29, No 6(12), Dec 1955, 892

Abstract : The authors conducted a preliminary study of the rotational spectrum of the molecule C_2H_5Cl, noting that a brief communication on the spectrum of this molecule had been published by R. Wagner and B. Dailey (J. Chem. Phys., 22, 1459, 1954), who investigated the transitions 1_{11}-2_{12}, 1_{10}-2_{11}, 2_{11}-3_{32}, and 2_{20}-3_{21} for molecule $C_2H_5Cl^{35}$ and transitions 1_{11}-2_{21}, 1_{10}-2_{11} for molecule $C_2H_5Cl^{37}$ and who obtained from these transitions the values of the rotational constants B and C and also the quadrupole bonds along the main axes of the moment of inertia. The present writers of this note studied new transitions, whose frequencies are listed, in the case where the influence of quadrupole interaction is excluded. Using these results they were able to determine the dipole moment μ_a of molecule $C_2H_5Cl^{35}$ from the Stark broadening of the line of superfine structure F= 3/2-5/2 to be $\mu_a = 1.79 \pm 0.05D$.

Institution: Physical Institute im. P. N. Lebedev, Academy of Sciences USSR

Submitted : July 19, 1955

BARchukov, A.I.

Microwave rotation spectrum of the ethyl chloride, molecule. A. I. Barchukov, T. M. Minaeva, and A. M. Prokhorov. *Soviet Phys., JETP* 2, 760(1956)(English translation).—See *C.A.* 50, 10537*f*. R. M. R.

3

BARCHUKOV, A.I.

PRIKHOT'KO, A.F.

24(7) p 3 PHASE I BOOK EXPLOITATION SOV/1365

L'vov. Universytet

Materialy X Vsesoyuznogo soveshchaniya po spektroskopii. t. 1: Molekulyarnaya spektroskopiya (Papers of the 10th All-Union Conference on Spectroscopy. Vol. 1: Molecular Spectroscopy) [L'vov] Izd-vo L'vovskogo univ-ta, 1957. 499 p. 4,000 copies printed. (Series: Its: Fizychnyy zbirnyk, vyp. 3/8/)

Additional Sponsoring Agency: Akademiya nauk SSSR. Komissiya po spektroskopii. Ed.: Gazer, S.L.; Tech. Ed.: Saranyuk, T.V.; Editorial Board: Landsberg, G.S., Academician (Resp. Ed., Deceased), Neporent, B.S., Doctor of Physical and Mathematical Sciences, Fabelinskiy, I.L., Doctor of Physical and Mathematical Sciences, Fabrikant, V.A., Doctor of Physical and Mathematical Sciences, Kornitskiy, V.G., Candidate of Technical Sciences, Rayskiy, S.M., Candidate of Physical and Mathematical Sciences, Klimovskiy, L.K., Candidate of Physical and Mathematical Sciences, Miliyanchuk, V.S., Candidate of Physical and Mathematical Sciences, and Glauberman, A. Ye., Candidate of Physical and Mathematical Sciences.

Card 1/30

Aleksanyan, V.T., Kh. Ye. Sterin, M. Yu. Lukina, et al. Raman Spectra of Certain Cyclopropane Hydrocarbons and the Double-bond Conjugation of a Three-membered Ring 64

Aleksanyan, V.T., Kh. Ye. Sterin, M. Yu. Lukina, and L.A. Nakhapetyan. Raman Spectra of Certain Monoalkyl Cyclobutanes and of Cyclobutylbromide 68

Klochkov, V.P. Effect of the Solvent on Absorption and Fluorescence Spectra 71

Barchukov, A.I., T.M. Murina, and A.M. Prokhorov. Microwave Spectrum of the C_2H_5Cl Molecule 75

Skripov, F.I. Temperature Dependence of the Frequencies of the Nuclear Quadrupole Resonance 75

Borodin, P.M., F.I. Skripov. Chemical Displacement and the Fine Structure of the Nuclear Magnetic Resonance of Fluorine in a Series of Compounds

Sov/51-4-4-14/24

AUTHORS: Barchukov, A.I., Murina, T.M. and Prokhorov, A.M.

TITLE: Microwave Spectrum and Rotational Constants of the C_2H_5Cl Molecule (Mikrovolnovyy spektr i vrashchatel'nyye postoyannye molekuly C_2H_5Cl)

PERIODICAL: Optika i Spektroskopiya, 1958, Vol. IV, Nr 4, pp 521 - 523 (USSR).

ABSTRACT: Microwave rotational spectrum of ethyl chloride (C_2H_5Cl) was first described in 1954 (Referencel). An approximate value of the rotational constant A for the $C_2H_5Cl^{35}$ molecule and the value of the dipole moment μ_a were given in Ref 2. The present paper reports a more precise determination of A from transitions related to changes of the dipole moment μ_b. For this purpose, the transitions $0_{00} \rightarrow 1_{11}(\nu = A + C)$ and $1_{01} \rightarrow 1_{10}(\nu = A - C)$ were found to be most convenient. The first of these transitions lies in the region of 36 000 Mc/s and the second in the 26 000 Mc/s region. The ethyl chloride spectrum was found to be very rich in lines in the range from 25 000 to 42 000 Mc/s. The lines of

Cardl/3

Microwave Spectrum and Rotational Constants of the C_2H_5Cl Molecule

the Q-branch from I = 1 to I = 9 lie in this range. The Q-branch was identified graphically by a method described in the present note. The value of A for the $C_2H_5Cl^{35}$ molecule obtained from the transition $1_{01} \rightarrow 1_{10}$ is 31 337.6 ± 0.5 Mc/s and the value of A obtained from the $0_{00} \rightarrow 1_{11}$ transition is 31 336.4 Mc/s. Since the hyperfine structure of the $0_{00} \rightarrow 1_{11}$ transition was not fully resolved, the value of A obtained from the $1_{01} \rightarrow 1_{10}$ transition is the more reliable. From the transitions considered here the value of the rotational constant C was found to be 4 961.6 Mc/s, which agrees with the value reported in Ref 1. The rotational constant A for the $C_2H_5Cl^{37}$ was found to be 31 285.7 Mc/s. Table 1 on p 522 gives the frequencies of the $1_{01} \rightarrow 1_{10}$ transition lines for various values of F . Table 2 gives the calculated (second column) and experimental (third column) values of rotational constants A, B and C for the $C_2H_5Cl^{35}$ and

Microwave Spectrum and Rotational Constants of the C_2H_5Cl Molecule

$C_2H_5Cl^{37}$ molecules. Table 2 shows good agreement between the experimental and calculated values. The value of the dipole moment μ_a was found from the Stark splitting of the $0_{00} \rightarrow 1_{01}$ transition. This value is given as 1.745 D $\pm$ 1.2% . There are 1 figure, 2 tables and 3 references, 1 of which is Soviet and 2 are in English.

ASSOCIATION: Fizicheskiy institut im. P.N. Lebedeva AN SSSR (Physics Institute imeni P.N. Lebedev, Ac.Sc. USSR)

SUBMITTED: April 4, 1957

Card 3/3 1. Ethyl chlorides--Spectrographic analysis

AUTHORS: Barchukov, A.I. and Basov, N.G. Sov/51-4-4-18/24

TITLE: Measurements of the Frequencies and Intensities of the Hyperfine Structure Lines of CH_3I (Transition $J = 0 \rightarrow 1$)
(Izmereniye chastot i intensivnostey liniy sverkhtonkoy struktury CH_3I (perekhod $J = 0 \rightarrow 1$))

PERIODICAL: Optika i Spektroskopiya, 1958, Vol IV, Nr 4, p 532 (USSR).

ABSTRACT: Complete translation. Both frequencies and absolute intensities of the hyperfine structure lines of the $C^{12}H_3I^{127}$ molecule were measured. The results of measurements are given in the table:

Transition F → F'	Frequency in Mc/s		Intensity (in cm^{-1})
	Measured	Calculated	
5/2 3/2	15275.87±0.05	15275.82	2.3×10^{-6}
5/2 5/2	14695.22±0.05	14695.22	3.5×10^{-6}
5/2 7/2	15100.74±0.05	15100.70	4.3×10^{-6}

Cardl/2

Sov/51-4-4-18/24

Measurements of the Frequencies and Intensities of the Hyperfine Structure Lines of CH_3I (Transition $J = 0 \rightarrow 1$)

Calculation of the frequencies was carried out with inclusion of corrections of the second approximation of the perturbation theory, using a value for the rotational constant B = 7501.29 Mc/s and the quadrupole coupling constant eQq = -1934 Mc/s. The values of these constants agree with the constants given in Refs 1-3. The absolute intensities of lines were measured by the method described in Ref 4. The measured relative intensities agree within 15% with the calculated values based on spin equal to 5/2. There are 1 table and 4 references, 1 of which is Soviet and 3 in English.

ASSOCIATION: Fizicheskiy institut im.P.N.Lebedeva AN SSSR
(Physics Institute im.P.N.Lebedev, Ac.Sc. USSR)

SUBMITTED: July 22, 1957

Card 2/2 1. Methyl iodides--Spectrographic analysis

AUTHORS: Barchukov, A.I. and Prokhorov, A.M. SOV/51-4-6-16/24

TITLE: Microwave Spectrum of the CH_3GeH_3 Molecule (Mikrovolnovyy spektr molekuly CH_3GeH_3)

PERIODICAL: Optika i Spektroskopiya, 1958, Vol IV, Nr 6, p 799 (USSR)

ABSTRACT: A complete translation. Spectrum of various isotopic combinations of the molecule CH_3GeH_3 were studied in the region of 33000-35000 Mc/s. The authors studied the transition $J = 1 \rightarrow 2$ which lies in this frequency region. The studied molecule exhibits internal rotation of the CH_3 and GeH_3 groups with respect to one another. The lines which were due to torsional vibrations were observed. These lines were four times weaker than the lines of the ground state ($v = 0$) and were separated by about 80 Mc/s from the latter. The excited-state line ($v = 1$) was split into two components with a ratio of intensities of 1 : 2 and a separation of 1.8 Mc/s between them.

Card 1/4

Microwave Spectrum of the CH_3GeH_3 Molecule

Molecule	B (v = 0)	B (v = 1)
$C^{12}H_3Ge^{76}H_3$	8621.1 ± 0.2	8.600
$C^{12}H_3Ge^{74}H_3$	8649.5 ± 0.2	8.628
$C^{12}H_3Ge^{73}H_3$	8663.9 ± 0.3	8.643
$C^{12}H_3Ge^{72}H_3$	8678.9 ± 0.2	8.659
$C^{12}H_3Ge^{70}H_3$	8710.2 ± 0.2	8.689
$C^{13}H_3Ge^{74}H_3$	8275.2 ± 0.2	—
$C^{13}H_3Ge^{72}H_3$	8305.2 ± 0.2	—
$C^{13}H_3Ge^{70}H_3$	8337.2 ± 0.3	—

The table given above contains values of the rotational constants B for various isotopic combinations of the ground (v = 0) and excited (v = 1) states. Observation of lines of various isotopic combinations made it possible to determine the distance C--Ge which was found to be equal to 1.946 ± 0.001 Å. From the study of the

Stark effect of the $C^{12}H_3Ge^{74}H_3$ line the value of the dipole moment of molecules was found to be $\mu = 0.67 \pm 1.5\%$ debyes. Measurement of the relative intensities of the lines of the ground ($v = 0$) and the first excited ($v = 1$) torsional states yielded value of the frequency of torsional vibrations, $\nu = 195$ cm^{-1}. Assuming that the potential barrier is of cosine form, the barrier height was found to be $V_o = 585$ cm^{-1}. Spectrum of the studied molecule was measured using a radio-spectroscope with Stark-modulation. The line frequencies were measured with a quartz generator. CH_3GeH_3 was prepared in the Physical Institute imeni P.N. Lebedev of the Academy of Sciences of the U.S.S.R. by G. Ya. Vzenkova by the method developed by V.A. Ponomarenko and G. Ya. Vzenkova (Ref 1), and the present authors thank the latter two people for their help.

SOV/51-4-6-16/24

Microwave Spectrum of the CH_3GeH_3 Molecule

There is one table and one Soviet reference (V.A. Ponomarenko and G. Ya. Vzenkova, Izvestiya AN SSSR, Seriya khimicheskaya, Vol. 8, 994, 1957).

ASSOCIATION: Fizicheskiy institut im. P.N. Lebedeva, AN SSSR (Physics Institute imeni P.N. Lebedev, Academy of Sciences of the U.S.S.R.)

SUBMITTED: December 3, 1957

Card 4/4

SOV/51-5-5-6/23

AUTHORS: Barchukov, A.I. and Prokhorov, A.M.

TITLE: The Quadruple Coupling Dipole Moment and Barrier to Internal Rotation in the CH_3GeH_3 Molecule Obtained from its Rotational Spectrum (Kvadrupol'naya svyaz', dipol'nyy moment i bar'yer vnutrennego vrashcheniya v molekule CH_3GeH_3 iz yeyo vrashchatel'nogo spektra)

PERIODICAL: Optika i Spektroskopiya, 1958, Vol 5, Nr 5, pp 530-534 (USSR)

ABSTRACT: CH_3GeH_3 was prepared by Vzenkova by the method described in Ref 2. This compound is a colourless liquid boiling at -23°C. It does not react with the material of the absorption cell. The rotational spectrum of CH_3GeH_3 was studied using a radiospectroscope with 100 kc/s Stark-modulation. Transitions $J = 0 \rightarrow 1$ ($\lambda \sim 1.7$ cm), $J = 1 \rightarrow 2$ ($\lambda \sim 8.9$ mm) were studied in an absorption cell 4 m long and 6 x 12 mm in cross-section. The $J = 3 \rightarrow 4$ transition ($\lambda \sim 4.4$ mm) was studied using a radiospectroscope for millimetre wavelengths (Ref 3) in an absorption cell 50 cm long and 3.6 x 7.2 mm in cross-section. The spectrum was obtained at the temperature of dry ice. The lines of $C^{12}H_3GeH_3$ were observed on an oscillograph screen. The $C^{13}H_3GeH_3$ spectrum was observed using a synchronous detector and an electronic potentiometer EPP-09. The frequencies were measured using a quartz standard and an

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The Quadruple Coupling Dipole Moment and Barrier to Internal Rotation in the CH_3GeH_3 Molecule Obtained From its Rotational Spectrum

auxiliary generator which was working at a frequency much higher than the quartz standard. The quartz standard was checked using standard frequency transmissions by radio. Table 1 gives the experimental frequencies of the observed lines (in Mc/s). Table 2 gives the values of the rotational constant B (in Mc/s) and the moments of inertia I_B (in atomic units x Å^2). for various isotopic combinations of CH_3GeH_3. From the experimental results reported here only the C--Ge separation can be calculated exactly. Its value is 1.946 Å. To determine other bond lengths and angles it is necessary to replace partially hydrogen by deuterium in CH_3GeH_3. The authors found that, if the structural parameters of CH_3SiH_3 (given in Ref 6) are used to calculate the rotational constants of CH_3GeH_3, then the values calculated in this way differ only by 5 Mc/s from those reported in the present paper.

SOV/51-5-5-6/23

The Quadruple Coupling Dipole Moment and Barrier to Internal Rotation in the CH_3GeH_3 Molecule Obtained From its Rotational Spectrum

The dipole moment of CH_3GeH_3 was calculated and found to be 0.67 Debye units. The nuclear quadruple coupling for $C^{12}H_3Ge^{73}H_3$ is less than 1 Mc/s. The smallness of this value is due to the covalent nature of the C--Ge bond. The potential barrier to internal rotation in CH_3GeH_3 is 580 cm^{-1}. There is 1 figure, 2 tables and 7 references, 4 of which are American and 3 Soviet.

SUBMITTED: December 21, 1957

Card 3/3

1. Molecules--Dipole moments 2. Molecules--Testing equipment
3. Molecular rotation--Spectrum

SOV/109-4-7-11/25

AUTHORS: Barchukov, A.I. and Prokhindeyev, A.V.

TITLE: Details of a Radio Spectroscope for the Wavelengths from 2.5 to 5 mm

PERIODICAL: Radiotekhnika i elektronika, 1959, Vol 4, Nr 7, pp 1173 - 1179 (USSR)

ABSTRACT: The authors developed a number of devices suitable for the spectroscopy at mm lengths. The main item in the range of devices is the frequency multiplier. This employs crystal-diode frequency multiplication. The diode does not comprise the usual holder, but forms an integral part of a wave-guide system. The device of this type is shown in Figure 2. The mechanism which permits the adjustment of the crystal-whisker contact is in the form of a differential system permitting a displacement of 0.1 mm for one turn of the screw. However, even this mechanism is not sufficiently fine for wavelengths below 4 mm; in fact, it is necessary to be able to make adjustments of the order of microns. Figure 2 shows the details of the multiplier: 1) the adjustment mechanism for the crystal point; 2) the screw of the adjustment plunger;

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3) crystal diode and 4) the contact spring. The details of the point of the contact spring are shown in Figures 3. The receiving head of the spectroscope is similar to that of the frequency multiplier. However, the operation of the receiving head is greatly dependent on the sharpness of the whisker point and its contact with the crystal. The next item of the spectroscope is a de-coupling device. This is in the form of a gyrator made from a thin rod of ferrite placed in the centre of a rectangular waveguide. The overall picture of the gyrator is shown in Figure 5. The absorption cell for the spectroscopic measurements was about 50 cm long and its electrode was supported by a holder made of teflon, having a thickness of 1 mm. The frequency at the mm waves could be measured by means of a heterodyne arrangement furnished with an additional frequency standard. Block schematic of the measurement circuit is shown in Figure 6. Another item necessary in the measurement is a frequency stabiliser. This employs

Details of a Radio Spectroscope for the Wavelengths from 2.5 to 5 mm

the circuit described by T.M. Murina (Ref 5) and its block schematic is shown in Figure 7. The spectroscope constructed by employing the above pieces of equipment could be used at frequencies up to 80 000 Mc/s. It was possible to use it to determine the rotational spectra of the molecules at frequencies up to 120 kMc/s, provided the absorption coefficient was 10^{-5}/cm. The authors express their gratitude to A.M. Prokhorov for his valuable advice. There are 7 figures and 5 references, of which 4 are English and 1 Soviet.

SUBMITTED: January 9, 1958

Card 3/3

BARCHUKOV, A.I.; PETROV, Yu.N.

Dipole moment of a CH_3GeH_3 molecule. Opt.i spektr. 11 no.1:129 Jl '61. (MIRA 14:10)
(Germanium compounds--Dipole moments)

BARCHUKOV, A. I.; PROKHOROV, A. M.

" Investigation of disk resonators at super-high frequency "
Presented at 10th Annual Colloq. on radioelectric Research
(A. M. P. E. R. E.) Leipzig, 13-17 Sep. 1961

S/109/62/007/003/007/029
D266/D302

AUTHORS: Barchukov, A.I., and Petrov, Yu.N.

TITLE: Quality of disc resonators

PERIODICAL: Radiotekhnika i elektronika, v. 7, no. 3, 1962, 414 - 415

TEXT: The purpose of the paper is to determine experimentally the dependence of the quality of a disc resonator on the distance between the discs. According to simple theory the quality of the resonator is proportional to its length. This approach takes into account only the losses in the plates. However, if the distance is large the radiation losses are no longer negligible and the quality of the resonator decreases. In the experimental set-up the authors used plates 190 mm in diameter and employed two wavelengths λ_1 and λ_2 [Abstractor's note: Numerical values not given]. The quality depended very much on the parallelism of the plates. The measured Q (plates adjusted to be as parallel as possible) is plotted in units of 10.000 against the number of half wavelengths. If the

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plate diameter to wavelength ratio is larger, a higher Q can be attained. The apparatus was used for spectroscopic absorption measurements. There are 2 figures and 5 references: 2 Soviet-bloc and 3 non-Soviet-bloc. The references to the English-language publications read as follows: A.G. Fox, T. Li, Bell System Techn. J., 1961 40, 2, 489; Quantum Electronic Symposium, p. 59, Columbia University Press, N.Y., 1960; G.D. Boyd and I.P. Gordon, Bell System Techn. J., 1961, 40, 2, 489.

SUBMITTED: February 13, 1961

Card 2/2

LEBEDKINA, Ye.D.; FEDOROV, V.M.; FAYNBERG, V.Ya., kand.fiz.-matem.nauk; BARCHUKOV, A.I., kand.tekhn.nauk; FESENKOV, V.G., akademik; FUCHEROV, V.F., doktor khim.nauk; DZERDZEYEVSKIY, B.L., prof.; SHAPIRO, G.S., doktor tekhn.nauk; KULAGINA, O.S.; UDAL'TSOVA, Z.V., doktor istor.nauk; LIKHACHEV, D.S.

Brief notes. Vest. AN SSSR 32 no.1:119-130 Ja '62. (MIRA 15:1)
(Scientific societies) (Research)

BARCHUKOV, A.I., PROKHOROV, A.M., SAVRANSKIY, V.V.

"Ammonia maser with disk resonator."

Report submitted to the Third Intl. Conf. on Quantum Electronics,
Paris, France 11-15 Feb 1963

BARCHUKOV, A.I.; PROKHOROV, A.M.; SAVRANSKIY, V.V.

Ammonia maser with disc resonator. Radiotekh. i elektron. 8 no.3:438-439 Mr '63. (MIRA 16:3)

(Masers)

L 18380-63 EWA(k)/EWT(l)/EWT(m)/EWP(q)/FBD/BDS/T-2/EEC(b)-2/ES(t)-2
AFFTC/ASD/ESD-3/RADC/APGC/AFWL/LJP(C)/3W2 JD/JHB/WG/K
ACCESSION NR: AP3006472 S/0109/63/008/009/1641/1642

AUTHOR: Barchukov, A. I.; Prokhorov, A. M.; Savranskiy, V. V. 76

TITLE: Biharmonic regime of an ammonia-beam maser 25 27

SOURCE: Radiotekhnika i elektronika, v. 8, no. 9, 1963, 1641-1642

TOPIC TAGS: ammonia-beam maser, beam maser, maser

ABSTRACT: Investigations of an ammonia-beam maser (line I = 3, K = 3, λ = 1.25 cm) using a disk cavity have shown that under certain conditions there is a simultaneous generation of a number of frequencies with a frequency difference from several hundred cps to several kc, depending on test conditions. For instance, by applying a constant electric field of the order of 30 v/cm to the cavity disks a difference of 5.4 kc is attained; with a further voltage increase the oscillation is disrupted. Under ordinary conditions the beat frequency was about 3.8 cps. The investigations have demonstrated the existence of at least two types of oscillations in the region of the spectral transition line, separated by about 20 Mc, with a Q-factor of about 7000 to 8000 for one type and of less than 1000 for the other. The existence of the biharmonic

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L 18380-63
ACCESSION NR: AP3006472

regime is explained by the nonuniform broadening of the transition line investigated. This explanation is also confirmed by the fact that the beat frequency increases with an increase in nonuniform broadening. Orig. art. has: 2 figures.

ASSOCIATION: none

SUBMITTED: 24Jan63	DATE ACQ: 30Sep63	ENCL: 00
SUB CODE: GE, SD	NO REF SOV: 002	OTHER: 001

Card 2/2

BARCHUKOV, A.I.; PROKHOROV, A.M.; SAVRANSKIY, V.V.

Biharmonic operating mode of an ammonia molecule beam maser.
Radiotekh. i elektron. 8 no.9:1641-1642 S '63. (MIRA 16:9)
(Masers)

ACC NR: AP7011022 SOURCE CODE: UR/0053/66/089/003/0520/0525

AUTHOR: Barchukov, A. I.; Basov, N. G.; Bunkin, F. V.; Veselago, V. G.; Irisova, N. A.; Karlov, N. V.; Manenkov, A. A.

ORG: none

TITLE: Aleksandr Mikhailovich Prokhorov

SOURCE: Uspekhi fizicheskikh nauk, v. 89, no. 3, 1966, 520-525

TOPIC TAGS: physics personnel, radio wave propagation, maser, quantum generator, academic personnel

ABSTRACT:

Aleksandr Mikhaylovich Prokhorov is one of the leading Soviet physicists, a corresponding member of the Academy of Sciences USSR, and a winner of the Lenin and Nobel prizes. He is associated with the development of quantum radiophysics and belongs to the widely known school of academicians L. I. Mandel'shtam and N. D. Papaleksi. Prokhorov has successfully combined physical investigations with the development of working devices employing new physical principles and phenomena.

Prokhorov was born on 11 July 1916 in Atherton, Australia. His father was a political refugee who had migrated to Australia in 1911. The family returned to Russia in 1923. In 1939 Prokhorov graduated with honors from the Physics Department of Leningrad University and entered the Oscillations Laboratory of the Physics Institute imeni P. N. Lebedev for postgraduate work. Prokhorov was in the army from 1941 until 1944, when after being

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wounded for the second time he was released. Prokhorov's scientific activity began in 1939 under the guidance of M. A. Leontovich and V. V. Migulin with the study of radiowave propagation along the earth's surface. From this study Prokhorov and Migulin developed an original way to observe the ionosphere by means of the radio interference method. In 1944 Prokhorov investigated the frequency stabilization of tube oscillators in the Oscillations Laboratory of the Lebedev Physics Institute. His first dissertation work was accomplished under the guidance of S. M. Rytov and was devoted to the theory of nonlinear oscillations. Prokhorov, Rytov, and M. Ye. Zhabotinskiy received the Mandel'shtam Prize for the development of the theory of frequency stabilization.

After defending his dissertation, Prokhorov proceeded with his work in radiophysics. In 1948 he began a study of coherent radiation in a synchrotron. From this investigation Prokhorov developed a method for determining the size of electron bunches and showed experimentally that a synchrotron generates coherent radiation in the centimeter range. He presented his results in the form of a doctoral thesis, which he defended successfully in 1951.

Simultaneously with his work in accelerator physics, Prokhorov, at the invitation of academician D. V. Skobel'tsyn, began working in the field of radiospectroscopy. Prokhorov's interest in radiospectroscopy was encouraged by the fact that well developed methods of radiolocation and radioengineering were being employed at that time. These methods were soon to find application in the new field of radiophysics, principally in the spectroscopy of the rotational and vibrational spectra of molecules. Besides investigating purely spectroscopic problems, Prokhorov also studied the employment of the absorption spectra in the uhf range for the construction of frequency and time standards. As a result of theoretical examinations of ways to raise the stability of molecular frequency and time standards, Prokhorov together with N. G. Basov wrote a series of classical works on the development of masers. It was at this point that Prokhorov became one of the founders of quantum electronics.

Prokhorov and Basov soon offered a new method for obtaining a system with negative temperature, the so-called "three levels method," which later became the basic method for developing paramagnetic as well as optical quantum generators and amplifiers. During the period from 1955 to 1960, Prokhorov concentrated on the development of quantum paramagnetic amplifiers in the uhf range, giving special attention to new crystals for

paramagnetic amplifiers and to the investigation of their spectra and relaxation characteristics. The ruby was investigated in Prokhorov' s laboratory and was proposed for use in quantum paramagnetic amplifiers.

Prokhorov' s works in quantum radiophysics were highly regarded. In 1959 Prokhorov and Basov were co-recipients of the Lenin Prize for developing a new method for the amplification and generation of electromagnetic waves.

Prokhorov in 1954 became supervisor of the Oscillations Laboratory, which under his supervision developed into two new laboratories of the Lebedev Physics Institute: the Radioastronomy Laboratory and the Quantum Radiophysics Laboratory. A professor at Moscow State University since 1957, Prokhorov there organized the Laboratory of Radiospectroscopy at the Scientific Research Institute of Nuclear Physics. One of the paramagnetic amplifiers for 21-cm waves constructed under Prokhorov' s guidance was installed on the 22-m parabolic mirror antenna operating at the Lebedev Institute' s Radioastronomy Station at Pushchino (near Serpukhov) for use in observing hydrogen emissions from space.

During this period Prokhorov directed a great deal of attention to the search for new crystals for amplifiers and generators in the range of millimeter and submillimeter wavelengths. His greatest attention was given to

lasers. In 1958, Prokhorov proposed a new type of resonator for submillimeter waves, the so-called open resonator in the form of two parallel mirror surfaces.

In 1960 Prokhorov was elected a corresponding member of the Academy of Sciences USSR in the Department of General and Applied Physics. Since then he has concentrated primarily on the study of processes in crystal lasers. Prokhorov has investigated and prepared crystals from fluorite with dysprosium and other impurities and has succeeded in using solar radiation to pump fluorite crystals.

A new principle for the operation of quantum generators by utilizing the two-quantum transitions was developed in 1963 under Prokhorov' s supervision. The construction of multi-photon (in particular two-photon) transition lasers is the future of quantum electronics.

In 1964 Prokhorov along with Basov and Charles Townes was awarded the Nobel Prize in physics. Prokhorov has since achieved significant results in developing continuously operating lasers for use in radiocommunications and technological operations.

ACC NR: AP7011022

Under Prokhorov' s guidance investigations have been proceeding in solid-state physics, particularly in the area of the behavior of superhigh-frequency solid-state plasma. This trend should open up possibilities for the construction of new physical devices and a new type of solid-state amplifier.

Through the initiative and under the scientific guidance of Prokhorov, a special system for obtaining continuous superstrong magnetic fields with intensities of the order of hundreds of kilooersteds has been developed. This will be the first such installation in the USSR.

A. M. Prokhorov has conducted investigations ranging over various fields of physics. The results of his investigations have been published in more than 160 scientific reports. A member of the Department of General and Applied Physics, Prokhorov is also Vice-President of the International Radio Association (URSI) and is Chairman of its Soviet committee.

Prokhorov' s works have influenced considerably the development of modern physics. His scientific and organizational activities have greatly affected the whole complex of works in quantum radiophysics carried out in the USSR. Orig. art. has: 1 figure. /FSB: v. 2, no. 9/

SUB CODE: 20 / SUBM DATE: none

Card 6/6

BARCHUKOV, I.M., redaktor.

[Battle for Tula; collection of materials and documents] Bitva za Tulu; sbornik materialov i dokumentov. 2-e izd. ispr. Tula, Obl.khizhnoe izd-vo, 1951. 286 p. [Microfilm] (Tula--World War, 1939-1945) (MLRA 8:1)

BARCHUKOV, M.I. (Kiyev)

Late results of using floating obturators in children with congenital cleft palate. Probl.stom. 6:327-331 '62. (MIRA 16:3)

(CLEFT PALATE) (PROSTHESIS)

BARCHUKOV, M.P.

Floating obturators in congenital cleft palate. Probl. stom. 5: 353-357 '60. (MIRA 15:2)

1. Kiyevskiy institut usovershenstvovaniya vrachey.
(PALATE, CLEFT)

BARCHENKOV, S.A., inzhener-kapitan 1-go ranga

A useful beginning. Mor. sbor. 47 no.1:93-96 Ja '64. (MIRA 18:7)

L 63106-65 EWT(m)/EPF(c)/EPF(n)-2/EWG(m) WW/DM

ACCESSION NR: AP5014546 UR/0089/65/018/005/0528/0529
621.039.517.5

AUTHOR: Barchuk, I. F.; Nazarchuk, M. M.; Ogorodnik, S. S.; Pilipets, D. T.; Slesarevskiy, S. O.

TITLE: Experimental study of the thermal conditions of the fuel elements of the VVR-M reactor

SOURCE: Atomnaya energiya, v. 18, no. 5, 1965, 528-529

TOPIC TAGS: reactor fuel element, fuel element temperature, active zone temperature distribution, coolant rating/ VVR-M

ABSTRACT: The authors measured the temperatures of the fuel rods of the VVR-M reactor in order to choose the optimal conditions for heat transfer from the active zone when operating at different power levels, and also to determine the heat-transfer margin built into the existing cooling system. The tests consisted of measuring the temperature distribution on the surface of the fuel element relative to the height and radius of the active zone, determining the influence of the control rods on this distribution, and choosing the optimal coolant flow. The temperatures were measured with thermocouples fastened to the surfaces of all the fuel elements. The method of securing the thermocouples is described. It was found

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ACCESSION NR: AP5014546

that the fuel-element temperature is practically the same on both sides, and that the highest thermal stresses in the active zone is on the periphery, near the beryllium reflector. The measurements to determine the optimal coolant flow were therefore made in the peripheral layer of the active zone, and consisted of finding the maximum reactor power corresponding to each rate of coolant flow. A nomogram for determining the optimal reactor operation is plotted on the basis of the results. It is concluded that the cooling system of the VVR-M reactor has ample margin for reliable operation at its 12 MW power rating. Orig. art. has: 3 figures.

ASSOCIATION: none

SUBMITTED: 24Mar64 ENCL: 00 SUB CODE: NP, TD

NR REF SOV: 003 OTHER: 000

Card 2/2

MOROZKIN, N.I. (Kiyev); TRINUS, V.A. (Kiyev); MOSLENKO, A.I. (Kiyev); [illegible], V.F. (Kiyev)

Clinical characteristics of the influenza of 1963. Sbor.nauch.trud. Inst.infek.bol. no.4:191-196 '64. (MIRA 18:6)

SHEYKO, I.N.; BARCHUK, V.T.

Behavior of zirconium dichloride in fused mixtures of alkaline and alkaline earth metals. Ukr. khim. zhur. 30 no.6:577-581 '64. (MIRA 18:5)

1. Institut obshchey i neorganicheskoy khimii AN UkrSSR.

DUKOVSKAYA, I.I.; ZNAMENSKAYA, Ye.S., mladshiy nauchnyy sotrudnik; BARCHUKOVA, A.Ya., mladshiy nauchnyy sotrudnik

Determining the optimum spun nylon content in its blend with cotton providing for the maximum increase of wear resistance of the fabric. Nauch.-issl.trudy TSNIILV 15:110-127 '61.

(MIRA 18:4)

1. Rukovoditel' assortimentnoy laboratorii TSentral'nogo nauchno-issledovatel'skogo instituta promyshlennosti lubyanykh volokon (for Dukovskaya).

BARCHUNOVA, F.M.(Moskva).

Courses for polytechnic training of teachers. Mat. v shkole no.6:87 N-D '56. (MLRA 10:1)

(Technical education)

Theoretical principles of mineralization of air bubbles in flotation. J. Barcicki, A. Barcicka, and A. Waksmundzki (Univ. M. Curie-Sklodowska, Lublin, Poland). *Przemysl Chem.* 11, 72–8(1955).—The physicochem. aspects of the attachment of the hydrophobized mineral to the air bubble are described and reviewed, e.g. wetting on the boundary of 3 phases, wetting hysteresis, thermodynamics, basic equation of equil. of forces acting on the aggregate bubble-mineral, effect of addnl. forces and time of contact, kinetics of mineralization, and effect of elec. forces on mineralization. 17 references. Mordecai Medwied

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Distr: 4E4j

BARCICKA, A.

4479 547.217.6 : 66.021.67 : 553 : 541

Barcicka A., Barcicki J., Waksmundzki A. Tentative Application of a Cationic Collector in the Flotation of Rock-Phosphate.

„Próby zastosowania kolektora kationowego do flotacji fosforytów". Przemysł Chemiczny. No. 4, 1956, pp. 217–221, 9 figs., 3 tabs.

Dodecylamine chloride was used as a collector in attempts to enrich rock-phosphates from Annopol. It was established that: 1) the cationic collector (dodecylamine chloride) is less selective in the flotation of Annopol phosphorites than anionic collectors; 2) frothers improve the results of flotation; 3) the cationic collector may be used for preliminary enriching prior to flotation with anionic collectors; 4) raising the flotation temperature to 27 or 30°C. improves the selectivity of the cationic collector.

BARCICKA A.

4193 553.611 : 66.021.97

Waksmundzki A., Barcicki J., Barcicka A. On the Possibility of Enrichment of Phosphorites from Annopol by Flotation.

O możliwościach wzbogacania fosforytów annopolskich na drodze flotacji". Przemysł Chemiczny, No. 4, 1956, pp. 221—225, 9 tabs.

Experiments on the multistage flotation of ground up phosphorites (grain size —0.2 + 0.02 mm), previously washed from slimes. In some processes of flotation, anionic collector was applied; in others — cationic and anionic collectors were used alternately. The trend of the process outlined was analysed by disseminating the products of flotation on sieves, and by determining the content of P_2O_5 in the fractions obtained. The grain size of concentrates with the highest P_2O_5 content was below 0.1 mm. On the basis of the results obtained, it was found possible to prepare concentrates of 25% — and higher — P_2O_5 content. Preliminary removal of silica and of residual slimes by means of a cationic collector considerably increased the yield and the percentage content of P_2O_5 in the concentrate. The degree of separation of mineral from the gangue, which should be comprised in a grain range from 0.1 — 0.2 mm., was found to be an important factor in determining the yield of the process. The average content of P_2O_5 in wastes obtained in the process of flotation with anionic collector was lower than 2%.

BARCICKA, A.

4188 553.641 : 66.021.97 : 66.022.621.925

Barcicka A., Waksmundzki A., Szczypior R. Investigation of the Optimum Disintegration of Phosphorites from Annopol for the Flotation Process.

„Badania najwłaściwszego rozdrobnienia fosforytów annopolskich jako nadawy flotacyjnej". Przemysł Chemiczny No. 4, 1955, pp. 207—211, 7 figs., 11 tabs.

The fractionation of ground up phosphorites of varying grain size carried out in heavy liquids. The isolated fractions of phosphate substance were investigated by microscopic analysis and the degree of separation of mineral from the gangue determined. In this way were established the optimum conditions for separating phosphorite deposit prior to the process of flotation at grain size of 0.3 mm. On the basis of chemical analysis of isolated fractions, the relation was determined between the content of P_2O_5 (in %) and the degree of disintegration. The upper theoretical limit of enriching phosphorites investigated was found to be 33% of P_2O_5 content.

BARCICKA, Anna

Chemical Abst.
Vol. 48 No. 9
May 10, 1954
General and Physical Chemistry

Surface tension and viscosity of binary mixtures of pyridine and quinoline with aliphatic alcohols. Andrzej Waksmundzki, Jarosław Ościk, and Anna Barcicka. *Ann. Univ. Mariae Curie-Skłodowska, Lublin-Polonia, Sect. AA*, 6, 73-86(1951)(English summary).—The relation between surface tension and viscosity was studied in systems (*a*) where a decrease of surface tension follows an increase of viscosity coeff., i.e. pyridine: EtOH, 2-propanol, 2-butanol, and 2-pentanol, (*b*) where a decrease of surface tension is at the same time accompanied by a decrease in coeff. of viscosity, i.e. pyridine: MeOH; quinoline: MeOH, EtOH, 2-propanol and 2-butanol, (*c*) where a decrease of surface tension is followed first by a decrease, then an increase, in viscosity coeff., i.e. quinoline: 2-pentanol. The relation for the studied systems was found to be $\sigma^{1/4} = (a\sigma/\eta) + b$, where *a* and *b* are consts., η = viscosity coeff. in centipoises, and σ = surface tension in dynes/cm. The consts. *a* and *b* for the systems studied were:

	Pyridine		Quinoline	
Alcohol	*a*	*b*	*a*	*b*
MeOH	8.750×10^{-4}	−1.031	-2.60×10^{-3}	2.920
EtOH	1.515×10^{-3}	1.819	-1.80×10^{-3}	3.054
2-propanol	1.000×10^{-3}	2.017	11.60×10^{-3}	0.792
2-butanol	0.8799×10^{-3}	2.037	6.50×10^{-3}	1.757
2-pentanol	0.8685×10^{-3}	2.103	6.20×10^{-3}	1.771

L. I. Piotrowski

9-2-54 ZPP

WAKSMUNDZKI, Andrzej; BARCICKA, Anna;

Influence of adding of non-polar liquid upon the collecting capacity of cation cllectors in the process of quarz flotation. Przem chem 39 no.12:773-776 D '60.

1. Pracownia Zakladu Fizykochemicznych Zjawisk Powierzchniowych, Polska Akademia Nauk, Warszawa

WAKSMUNDZKI, Andrzej; BARCICKA, Anna; DOBROWOLSKI, Juliusz; NOWAK, Maciej

Studies on flotation deactivation of quartz activated with iron ions. Przem chem 41 no.5:265-268. My '62.

1. Katedra Chemii Fizyczney, Uniwersytet im. M. Curie-Sklodowskiej, Lublin i
Instytut Badan Jadrowych, Warszawa.

BARCICKA, Anna

Changes of the electrokinetic potential in the deactivation process of activated quartz with aluminum ions. Przem chem 41 no.5:261-264. My '62.

1. Katedra Chemii Fizycznej, Iniwersycet im. M. Curie-Sklodowskiej, Lublin.

BARCICKI, J.

Decolorizing properties of [siliceous] "decalcinated chalk" deposits. A. Waksmundzki and J. Barcicki (*Ann. Univ. M. Curie-Skłodowska*, 1953, **AA**, 8, 1–8).—Experiments are described concerning the decolorizing properties of a batch of so-called "decalcinated chalk" (SiO_2 87·7, Al_2O_3 2·6, Fe_2O_3 0·8, CaO 0·54, MgO 0·78 and H_2O 1·0%). Raw rape oil was used as test material. 6·6% of the earth decolorizes the oil to the extent of 88·4%, the filter bed retaining 0·75 ml. of oil per g. of earth in a test employing 10 ml. of oil.

S. KREL.

(1)

BARCICKI, JANUSZ

Bleaching properties of "decalcinated chalk" deposits. Andrzej Waksmundzki and Janusz Barcicki (Zakład Chem. Fiz. Wydziału Mat.-Gir. Chem. U.M.C.S., Lublin). *Ann. Univ. Mariae Curie-Sklodowska, Lublin-Polonia, Sect. AA*, 8, 1–8(1953)(English summary).—Decalcinated chalk deposits, found in Lublin province, were found to contain SiO_2 87.7, Al_2O_3 2.8, Fe_2O_3 0.8, CaO 0.51, MgO 0.78, and bound H_2O 1.0%. It decolorized crude rape oil 88.4% when 0.6 g. was used per 100 ml. oil. L. J. Bircumshaw

Theoretical principles of mineralization of air bubbles in flotation. J. Barcicki, A. Barcicka, and A. Waksmundzki (Univ. M. Curie-Sklodowska, Lublin, Poland). *Przemysl Chem.* 11, 72–8(1955).—The physicochem. aspects of the attachment of the hydrophobized mineral to the air bubble are described and reviewed, e.g. wetting on the boundary of 3 phases, wetting hysteresis, thermodynamics, basic equation of equil. of forces acting on the aggregate bubble-mineral, effect of addnl. forces and time of contact, kinetics of mineralization, and effect of elec. forces on mineralization. 17 references. Mordecai Medwied

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Distr: 4E4j

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Barcicki J., Wakymundzki A., Szczypa J. The Effect of Certain Parameters on Flotation of Annopol Phosphorites with Tall Oil as a Collector.

„Wpływ niektórych parametrów na przebieg flotacji fosforytów annopolskich przy użyciu oleju talowego jako kolektora". Przemysł Chemiczny. No. 4, 1956, pp. 213—218, 16 figs., 1 tab.

Using tall oil as a collector, the authors investigated the effect of various factors on the progress of flotation of phosphorites from Annopol. The pulp, grading less than 0.3 mm., was washed from mud. The experiments were concerned with the effect of the following parameters: amount of kerosene and the manner of adding it, density of the suspension floated, and the addition of water glass as a depressor. It was established that adding the collector and kerosene simultaneously gives better results than when the two agents are added separately. This is probably connected with the improved dispersion and stability of the collector emulsion in the water. Optimum collector-to-kerosene ratio is 4:3. With increasing kerosene additions, the stability of the froth is gradually depressed. The froth becomes brittle and is quickly extinguished. The best P_2O_5 yields and the best flotation of the mineral are obtained at a mineral-to-liquid ratio 1:3. Increasing the density of the suspension improves selection at the expense of P_2O_5 yield. The most favourable pH medium (pH 10) is obtained by adding Na_2CO_3. Optimum additions of water glass are 1000 g/t. In the absence of mud, larger additions of water glass fail to improve selection and require increased additions of the collector.

BARCICKI, J.

4473 547.317.6 : 66.021.67 : 553 : 541

Barcicka A., Barcicki J., Waksmundzki A. Tentative Application of a Cationic Collector to the Flotation of Rock-Phosphates.

„Próby zastosowania kolektora kationowego do flotacji fosforytów", Przemysł Chemiczny, No. 4, 1956, pp. 217—221, 3 figs., 2 tabs.

Dodecylamine chloride was used as a collector in attempt to enrich rock-phosphates from Annopol. It was established that: 1) the cationic collector (dodecylamine chloride) is less selective in the flotation of Annopol phosphorites than anionic collectors; 2) frothers improve the results of flotation; 3) the cationic collector may be used for preliminary enriching prior to flotation with anionic collectors; 4) raising the flotation temperature to 27 or 35°C improves the selectivity of the cationic collector.

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1135 553.641 : 63.021.07

Waksmundzki A., Barcicki J., Barcicka A. On the Possibility of Enrichment of Phosphorites from Annopol by Flotation.

„O możliwościach wzbogacenia fosforytów annopolskich na drodze flotacji", Przemysł Chemiczny, No. 4, 1956, pp. 221—225, 9 figs.

Experiments on the multistage flotation of ground up phosphorites (grain size —0.2 + 0.03 mm), previously washed from slimes. In some processes of flotation, anionic collector was applied; in others — cationic and anionic collectors were used alternately. The trend of the process outlined was analysed by disseminating the products of flotation on sieves, and by determining the content of P_2O_5 in the fractions obtained. The grain size of concentrates with the highest P_2O_5 content was below 0.1 mm. On the basis of the results obtained, it was found possible to prepare concentrates of 25% — and higher — P_2O_5 content. Preliminary removal of silica and of residual slimes by means of a cationic collector considerably increased the yield and the percentage content of P_2O_5 in the concentrate. The degree of separation of mineral from the gangue, which should be completed in a grain range from 0.1 — 0.2 mm., was found to be an important factor in determining the yield of the process. The average content of P_2O_5 in waste obtained in the process of flotation with anionic collector was lower than 2%.

WAKSMUNDZKI, Andrzej; BARCICKI, Janusz

Determination of the optimal solvent system for Craig's method from paper chromatographic data. I. Rocz chemii 35 no.5:1363-1372 '61.

1. Department of Physical Chemistry, M. Curie-Sklodowska University, Lublin and Department of Inorganic Chemistry, Medical Academy, Lublin.

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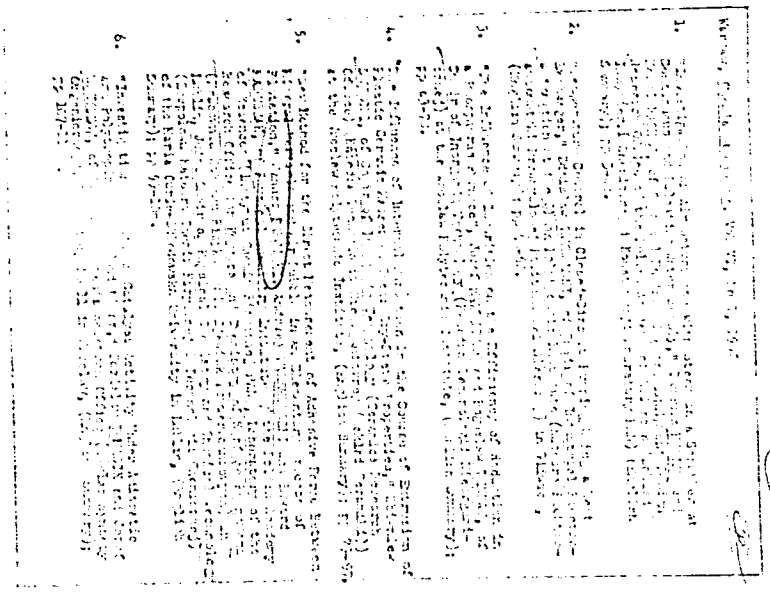
Physico-chemical processes in the system: mixed collector(oleic acid kerosene) -- alkaline aqueous solution. Rocz chemii 35 no.5:1373-1380 '61.

1. Laboratory of the Department of Physico-chemical Surface Phenomena, Institute of Physical Chemistry, Polish Academy of Sciences, Lublin.

BARCICKI, DAN



BARCICKI, Janusz

Interfacial stress of γ-liquids and the border angle θ in the system: apatite-mixed collector-aqueous solution. Przem chem 39 no.5:283-287 My '60.

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Influence of non-polar liquid (kerosene) upon the flotation of non-sulphide minerals. Przem chem 39 no.10:624-629 O '60.

1. Instytut Chemii Fizycznej, Polska Akademia Nauk, Warszawa i Pracownia Zakladu Fizykochemii Zjawisk Powierxchniowych, Lublin

BARCICKI, Janusz

Moistening of apatite surface in aqueous medium with mixtures of kerosene and oleic acid. Przem chem 40 no.7:390-393 Jl '61.

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BARCICKI, Janusz

Emulsified reagents to flotation; a preliminary note. Przem chem 41 no.7:393 Jl '62.

1. Zespolowa Katedra Chemii Fizycznej i Technologii Chemicznej, Uniwersytet im. M.Curie-Sklodowskiej, Lublin.

BARCICKI, Janusz; WAKSMUNDZKI, Andrzej; MARUSZAK, Edward

A new method of measuring directly the adhesive force between a mineral particle and an air bubble during elementary flotation processes. Chemia stosow 6 no.1:99-106 '62.

1. Instytut Chemii Fizycznej, Polska Akademia Nauk, Pracownia Zakladu Fizykochemii Zjawisk Powierzchniowych, Lublin, i Zespolowa Katedra Chemii Fizycznej i Technologii Chemicznej, Uniwersytet im. Marii Curie-Sklodowskiej, Lublin.

BARCIKOWSKA, Barbara

Flowering biology of white melilot (Melilotus albus Desr.) and yellow melilot (Melilotus officinalis (L.) Desr.). Postepy nauk roln 10 no. 2: 71-76 Mr-Ap '63.

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BARCIKOWSKA-STEMPIEN, Aleksandra; HORSKI-HORONCZYK, Stanislaw; PRUSINA, Antoni

Significance of microsymptoms of the nervous system in cases of late syphilis. Neur. &c. polska 7 no.6:933-938 Nov-Dec 57.

1. Z Kliniki Chorob Newowych A. M. w Lodzi. Kierownik: prof. dr nauk med. E. Herman Z Osrodka Konsultacyjnego dla Kily Poznej przy Klinice Chorob Skorno-Wenerycznych A. M. w Lodzi. Kierownik: prof. dr med. J. Lutowiecki i z Centralnej Poradni Skorno-Wenerologicznej w Lodzi. Kierownik: dr med. L. Nitecki

(NEUROSYPHILIS, manifest.
microsympt. of NS in late syphilis (Pol))

BARCIKOWSKI, Edward, mgr inz.

Research work on new designs of engines is going on. Przegl techn no.35:7 2 S '62.

ACC NR: AP6033809 (A) SOURCE CODE: PO/0061/66/000/005/0162/0172

AUTHOR: Barcikowski, E. (Major, Master engineer)

ORG: none

TITLE: What should be the infantry fighting vehicle like?

SOURCE: Przegląd wojsk ladowych, no. 5, 1966, 162-172

TOPIC TAGS: infantry weapon, military engineering, armored vehicle, vehicle engineering

ABSTRACT: An infantry fighting vehicle is proposed as a substitute for the presently used armored transporter; the shortcomings of the latter and the detailed design and construction of the former are discussed. The proposed vehicle is evaluated on the basis of its mobility, firing power, and armor. The caterpillar type of drive is preferred over the wheel type, since it assures greater mobility over difficult terrain. The vehicle should be self-propelled in water. It should have at least 1.5 times greater mobility range than tanks and should be fitted with supplies of food and water sufficient for several days of fighting without replenishment. The maximum speed should be 70 km/hour on finished roads and at least 40 km/hour over rough terrain. The fuel and lubricants should be the same as those used for tanks. The firing equipment should be light and yet sufficient for defense of the infantry and the vehicle. It should have a deck weapon which can provide fire support for tanks with which it acts

Card 1/2

ACC NR: AP6033809

in concert. The armor of the vehicle should be light, so that the mobility is not impaired, but sufficient to protect the car and its crew from bomb, mine, and artillery shell fragments, from rifle and machine gun bullets and from radiation.

SUB CODE: 13, 15/ SUBM DATE: none

Card 2/2

BARCIKOWSKI, Stanislaw; JANOWSKI, Bogdan

Remote results in 150 patients operated on for pulmonary tuberculosis. Postepy hig. med. dosw. no.2:41-42 '60.

1. Z Wojewodzkiej Przychodni Przeciwgruzliczej dla m. Lodzi Dyrektor: prof. dr J. Szustrowa.

(PNEUMONECTOMY statist)

BARCIKOWSKI, Stanislaw
SURNAME, Given Names

(1)

Country: Poland

Academic Degrees: Lekarz [Military rank: Captain]

Affiliation: First Surgical Clinic (I Klinka Chirurgiczna), Military School of Medicine (WAM--Wojskowa Akademia Medyczna), Lodz.

Source: Warsaw, Lekarz Wojskowy, Vol 36, No 5, 1961, pp. 481-488.

Data: "Control of Post-Pericardioectomal Acute Circulatory and Respiratory Insufficiency with the Aid of an Engstrom Respirator."

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BARCIKOWSKI, Stanislaw

Remote results after surgical therapy of pulmonary tuberculosis. Gruzlica 29 no.3:213-226 Mr '61.

1. Z Wojewodzkiej Przychodni Przeciwgruzliczej m. Lodzi Dyrektor: prof. dr med. J. Szustrowa.

(TUBERCULOSIS PULMONARY surg)

PRUSZYNSKI, J.; GEBICKI, L.; TKACZEWSKI,W.; KASPRZAK, M.; BARCIKOWSKI, S.

Starr-Edwards prothesis for mitral incompetence. I. Clinical evaluation. Kardiol. Pol. 8 no.1:9-13 '65

1. Z II Kliniki Chirurgicznej (Kierownik: prof. dr. J.Pruszynski) i z III Kliniki Chorob Wewnetrznych Wojskowej Akademii Medycznej w Lodzi (Kierownik: prof. dr. A. Himmel).

PRUSZYNSKI,...; KASPRZAK,M.; BARCIKOWSKI,S.; WLALZINSKI, J.; KAMIENICE, M.; [illegible]SKA, M.; GEBICKI,I.; TKACZEWSKI,W.

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1. [illegible] Kliniki Chirurgicznej (Kierownik: prof. dr. J. Prus[illegible]) i z III Kliniki Chorob Wewnetrznych Wojskowej Akademii Medycznej w Lodzi (Kierownik: prof. dr. A. Mi[illegible]el).

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Chir. narz. ruchu ortop. polska 17 no. 4:273-280 1952. (CLML 24:2)

1. Of the Orthopedic Clinic (Head -- Prof. W. Daga, M.D.) of Poznan Medical Academy.

BARCIKOWSKI, W.

Problems of orthopedics and traumatology according to the Pavlovian theory. Chir. narz. ruchu ortop. polska 18 no.1:9-20 1953. (CLML 24:5)

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BARCIKOWSKI, W., V-Min. Dr

Educational work in medical schools. Zdrowie pub., Warsz. no.1: 1-22 Jan-Feb 55.
(EDUCATION, MEDICAL, in Poland, tasks)

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Organizational problems of Polish orthopedics. Cesk. zdravot. 5 no.3:168-175 Mar 57.

1. Namestek ministra prace a socialni pece.
(ORTHOPEDICS,
in Poland, organiz. (Cz))